



ULTRASTRUCTURAL CHARACTERIZATION OF HEMOCYTES FROM *Rhipicephalus microplus* ENGORGED FEMALES

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Despite the lack of knowledge about ticks acquired immune response, some studies reported a well-developed innate immune system, including a response mediated by hemocytes. The reports about arthropods immune system are concentrated in crustaceans or insects, being literature about *Rhipicephalus microplus* ticks scarce. In this scenario, the aim of this study was characterized the ultrastructure of different hemocytes of *R. microplus* engorged females. Hemolymph collection from 60 females was performed through the dorsal surface of cuticle and it was centrifuged at $500 \times g$ for three minutes at 4 °C. The hemocytes were separated from the plasma and fixed in 2% glutaraldehyde for 3 hours at 4 °C, post-fixed in 1% OsO₄ at room temperature and dehydrated in ascending acetone series. Then, samples were embedded in Polybed resin, stained with uranyl acetate and lead citrate, and the examination was performed in Jeol 100 CX II transmission electron microscope. In this tick specie, four different cells were identified morphologically (prohemocytes, granulocytes, plasmatocytes and spherulocytes). Prohemocytes presented a large and central nucleus, few granules and mitochondria. Granulocytes exhibited a centralized or eccentric nucleus, as well as cytoplasmic projections and a large quantity of granules with different electrondensities. Plasmatocytes presented variable size, with no granular inclusions (or few) in the cytoplasm and exhibiting pseudopodia. Spherulocytes showed spherules occupying the entire cytoplasm and with homogeneous electrondensities. As in insects, *R. microplus* presents precursor cells (prohemocytes) with large quantities of granules in the cytoplasm. On the other hand, this specie exhibits plasmatocytes with granulations, differently from other tick species, insects and chelicerates. In conclusion, *R. microplus* hemocytes ultrastructural characterization represents a pioneering result that opens new perspectives for the comprehension of this arthropod physiology, especially the immune response.

Key words: engorged females, tick cells, hemolymph, immune response, electron microscopy.

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